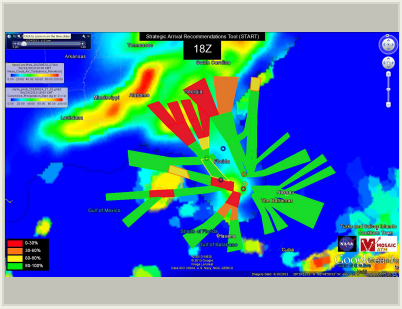
Small Business Innovation Research/Small Business Tech Transfer

Strategic Arrivals Recommendation Tool, Phase I

Completed Technology Project (2014 - 2014)

Project Introduction

During the conduct of a NASA Research Announcement (NRA) in 2012 and 2013, the Mosaic ATM team first developed the Strategic Arrivals Recommendation Tool concept, or START. Though this concept was developed in direct response to Miami Center's request to our team to provide a tool that could assist them during the summer convection season, this concept could be applied anywhere in the NAS. Given that the Florida region has some of the most challenging convection to predict, we believe that if START can be successful for ZMA, it can be adapted to support TMUs in other areas of the NAS where convection is an issue. START is the use of en route weather translation and airspace capacity models to the challenge of strategically planning arrival flows in advance of expected capacity reductions due to convective weather. START provides probabilistic en route capacity estimates for corridors used by arriving flights, models the impact of capacity reductions on traffic, and then provides recommendations for strategic Traffic Management Initiatives that better balance demand and capacity given the uncertainty in the weather. In Phase I, our objective is to demonstrate the feasibility and potential benefit of the START automated recommendations concept. We intend to accomplish this by developing and testing specific algorithms that will be necessary to achieve this goal and providing a preliminary benefit assessment of the concept. These include the airspace capacity model and the reroute recommendation optimization model. Our Phase II objectives are to integrate the algorithms developed in Phase I into the START prototype software. We will continue to work with Miami Center and American Airlines to vet START as the capabilities mature, ensuring that the tool is meeting the needs of the Traffic Management Unit specialists and airspace users. Through the accomplishment of the Phase II activities, START will be ready for full field evaluations to be conducted by NASA.



Strategic Arrivals Recommendation Tool Project Image

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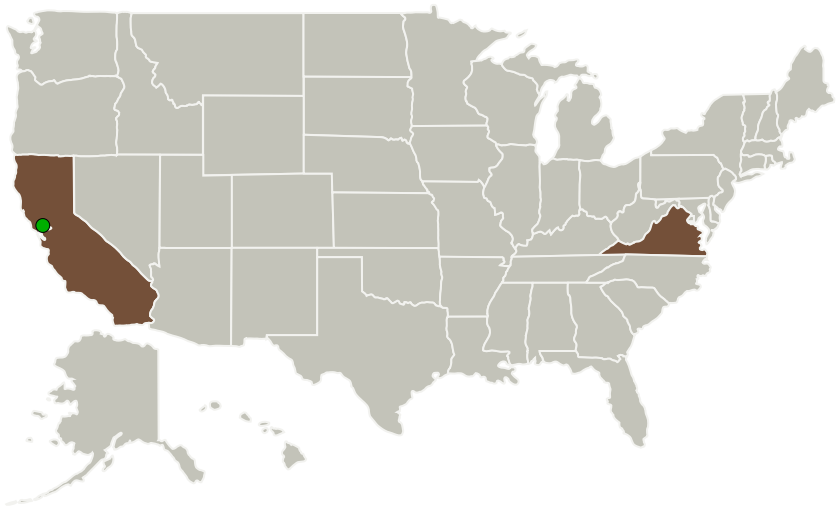
Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Mosaic ATM, Inc.	Lead Organization	Industry	Leesburg, Virginia
Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California

Primary U.S. Work Locations	
California	Virginia

Project Transitions

June 2014: Project Start

December 2014: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/137913)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Mosaic ATM, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

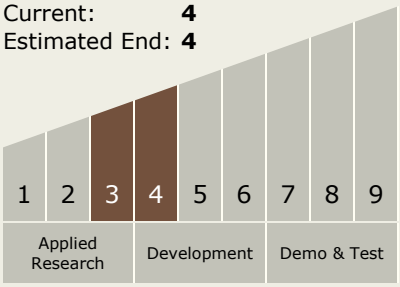
Carlos Torrez

Principal Investigator:

Lara Shisler

Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



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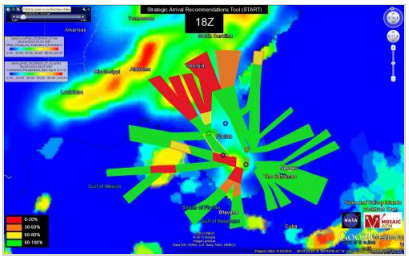
Images



Project Image
Strategic Arrivals Recommendation Tool Project Image
(https://techport.nasa.gov/image/126829)

Technology Areas

Primary:

- TX16 Air Traffic Management and Range Tracking Systems
  - TX16.3 Traffic Management Concepts

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System